1 Racial and Ethnic Disparities in Heart Disease among Men

Although heart disease is the leading cause of mortality for men of all racial and ethnic groups within the United States, significant racial inequalities in heart disease mortality among men have been reported for over 50 years.[1] However, efforts to evaluate racial and ethnic disparities in heart disease mortality have been significantly hampered by problems of data quality, which are discussed in more detail later in this section. Data quality issues have been a particular problem for American Indians and Alaska Natives, Asian and Pacific Islanders, and Hispanics. Consequently, few previous studies have examined these groups. Studies of mortality in the 1960s and 1970s found lower rates among Japanese and Chinese men compared with white men in the United States.[2] Similar studies have found lower rates of heart disease mortality among American Indians and Alaska Natives compared with whites, although there is evidence that American Indians are at growing risk for heart disease.[2]

Most previous reports have focused on comparing heart disease outcomes between whites and blacks, the two largest racial groups in the United States. Early studies were consistent in reporting either similar or lower heart disease death rates in black men compared with white men.[3] One proposed explanation for the seemingly lower risk of heart disease among black men reported in early studies, in spite of considerable socioeconomic disadvantage, is that the transition of heart disease from a "disease of affluence" to a "disease of disadvantage" occurred later among African Americans than it did among United States whites.[4] In other words, important behavioral risk factors for heart disease such as cigarette smoking, physical inactivity, and consumption of a high-fat diet were more prevalent among people of higher social class early in the 20th century, but later became more prevalent among people of lower social class. These changes occurred as a result of dramatic societal changes in standard of living and occupational structure. Consequently, the continued socioeconomic disadvantage of African American men predicts increasing racial inequalities in heart disease mortality in the future.

More recent studies indeed have reported higher rates of, and more adverse temporal trends in, heart disease mortality among black men compared with white men, particularly among men aged less than 65 years old.[3,5] In general, black men experience earlier onset of disease, more severe disease, higher rates of complications, and more limited access to medical care than white men.[3]

An important part of the national effort to eliminate racial and ethnic disparities in heart disease must include consideration of geographic disparities both within and among racial and ethnic groups in the United States. This publication presents geographic disparities in heart disease mortality for American Indian and Alaska Native men, Asian and Pacific Islander men, black men, Hispanic men, and white men.

The Social Construction of Race

Following several experts in human evolution,[6,7] we recognize *race* and *ethnicity* as valid scientific categories but *not* as valid biological or genetic categories. The health sciences include both biological and social sciences, and from a social science perspective race and ethnicity categories reflect the reality of socially distinct groups in the United States. Ethnic groups typically share certain cultural, linguistic, and other characteristics, and often are multiracial. Contemporary race divisions are the result of historical events, in particular the often hostile encounters (e.g. wars and colonizations) between population groups that were formerly geographically isolated. Differences in physical appearance between population groups that were politically in conflict acquired inflated social significance compared with differences in physical appearance among individuals of the same group.

The idea that geographically defined human social groups, such as "Africans" or "Japanese," were actually biologically and genetically distinct human "races" or "subspecies" gained popular credence in the nineteenth and early twentieth centuries.[3] Most of the scientific evidence generated during those times to support theories of biologically distinct human races has since been discredited and disavowed by many scientists.[8-10] These contemporary scientists have demonstrated that the significance attributed to physical characteristics is wholly social and histori-

cal in origin, and does not reflect biologically or genetically important differences among people.[6] However, there is still popular belief in the mistaken idea that the superficial differences in physical appearance among people of various racial and ethnic groups must be linked to more profound and significant genetic differences in behavior, intelligence, and susceptibility to disease.

Empirical evidence from population biology demonstrates why the theory of genetically distinct races is incorrect. First, all human beings share the same genes. This is what defines us as a species. Each person has two copies of essentially all genes, because our chromosomes come in pairs – one inherited from our mother and one inherited from our father. Slight variations in the form, and sometimes the function, of individual genes do exist in human populations. These gene variations are called *alleles*. However, 75% of all human genes are monomorphic, which means that only one allele exists in all people.[6] Only a very small fraction of all human alleles severely impact gene function in a way that leads to disease. Most importantly, there are no particular alleles (whether detrimental, beneficial, or neutral) that can be found to exist in only one racial or ethnic population and not in others. For example, the allele of the hemoglobin gene that leads to sickle cell disease, typically thought to be found solely in people of African descent, is also found in some Asian populations.

In summary, the five racial and ethnic groups described in *Men and Heart Disease* are socially, but not biologically, distinct groups. Moreover, we recognize that each of these broad racial and ethnic groups includes people of tremendous diversity with regard to culture, socioeconomic status, heritage, and area of residence. If we accept the idea that different racial and ethnic groups do not vary systematically in their inherent genetic susceptibility to disease, then to what can we attribute racial and ethnic disparities in heart disease mortality? Current research suggests a number of possibilities, including differences in social class, culture, behavioral risk factors, psychosocial risk factors, and the direct effects of racism, segregation, and discrimination.[11]

Misreporting of Race and Ethnicity on Death Certificates

An important concern for examining racial and ethnic disparities in heart disease mortality is the accuracy of race and ethnicity information reported on death certificates. Separate entries are available for race (American Indian or Alaska Native, Asian or Pacific Islander, black, and white) and Hispanic origin (yes or no). Unfortunately, there is evidence from several studies that race and ethnicity are not always reported accurately on death certificates. There are instances when American Indians and Alaska Natives, along with Asian and Pacific Islanders, are mistakenly identified as white, and Hispanics are mistakenly reported as non-Hispanics. This misreporting results in artificially lower mortality rates for those racial and ethnic groups. It is uncommon for race to be misreported for blacks. Misreporting of race and ethnicity on death certificates does not significantly increase mortality rates for whites, because the number of decedents who are misidentified as white on their death certificates is small relative to the very large white population.

One study[12] compared race and ethnicity information from the Current Population Survey with similar data on death certificates for 43,000 individuals who died between 1979 and 1985. The study found that race was coded incorrectly on the death certificate for 0.8% of whites, 1.8% of blacks, 17.6% of Asian and Pacific Islanders, and 26.6% of American Indians. Hispanic ethnicity was miscoded on the death certificate for 10.3% of individuals who self-identified as Hispanic on the survey, with the greatest errors for persons who identified themselves as Cuban or "other Hispanic." A similar study found high rates of disagreement between AIDS case reports and death certificates for American Indians (46%), Asians and Pacific Islanders (12%), and Hispanics (14%).[13] A study of infant mortality in California found that rates for American Indians and Asians were significantly underestimated.[14] Correct reporting of American Indian origin on death certificates was found to be associated with tribal affiliation and percentage of American Indian ancestry in a study that linked Indian Health Service records and death certificates in Washington State.[15]

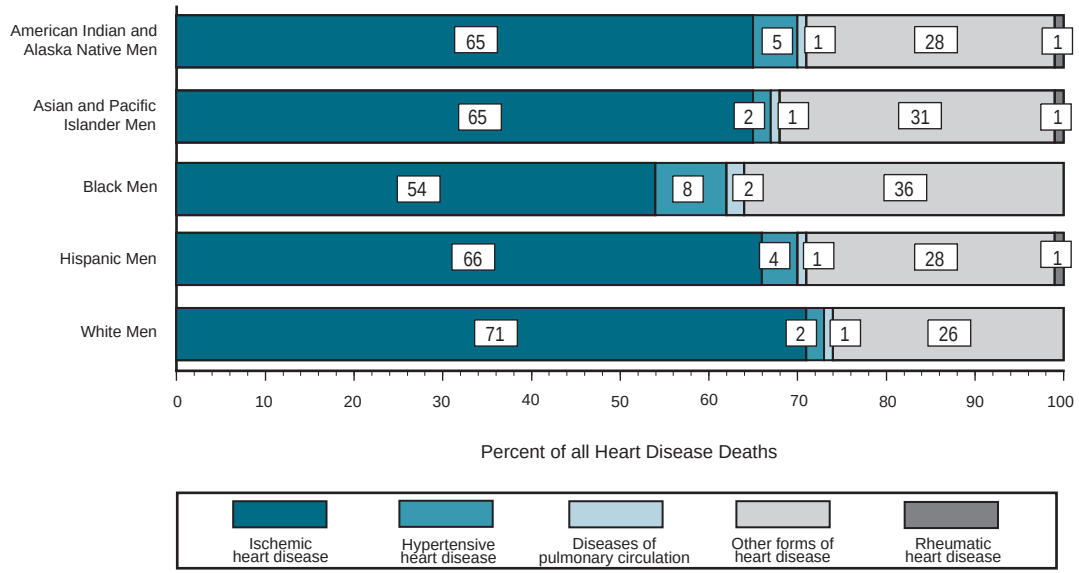
A recent report from the National Center for Health Statistics estimates that death rates (for all causes of death combined) corrected for misreporting of both race and ethnicity on the death certificates, and population undercounts in census files, would be 21% higher than currently reported for American Indians and Alaska Natives, 11% higher for Asians and Pacific Islanders, and 2% higher for Hispanics.[16] No studies to date have evaluated the extent of geographic variation in the accuracy of reporting race and ethnicity on the death certificate and in the degree of population undercounts.

Specific Categories of Heart Disease Deaths among Men

The definition of heart disease used in this study was the category "diseases of the heart" as defined by the National Center for Health Statistics (see Appendix B for details). This definition encompasses a variety of forms of heart disease including rheumatic heart disease (a consequence of untreated streptococcal infection that can cause permanent damage to the heart valves over time), diseases of pulmonary circulation, hypertensive disease, ischemic heart disease (narrowing of the coronary arteries which decreases the supply of blood to the heart), and other forms of heart disease (including pericarditis, myocarditis, mitral valve disorders, cardiomyopathy, and heart failure).

The majority of heart disease deaths among men of all racial and ethnic groups were attributable to ischemic heart disease during 1991-1995 (Figure 1.1). Specific categories of heart disease death differed most between African American men and white men. Ischemic heart disease was a more common cause of heart disease death among white men compared with black men (71 percent vs. 54 percent), while hypertensive heart disease was a more common cause of heart disease death among black men compared with white men (8 percent vs. 2 percent). Rheumatic heart disease and diseases of pulmonary circulation were rare causes of heart disease death for men of all racial and ethnic groups.

Figure 1.1
Specific categories of heart disease deaths among men 35 years of age and older, by race and ethnicity, 1991-1995



Age Distribution of Heart Disease Deaths among Men

Heart disease mortality increases dramatically with age, with elderly men (85 years and older) at highest risk of death. Heart disease deaths that occur before the age of 65 are generally considered premature, preventable deaths, and are therefore of particular public health significance. During 1991-1995, the proportion of heart disease deaths that occurred prematurely among men varied considerably by race and ethnicity (Figure 1.2). The least favorable age distribution of heart disease deaths was experienced by African American men, with 40 percent of deaths occurring among men less than 65 years old. The proportion of heart disease deaths that were premature among Latinos (including men of all races) was 37 percent. White men experienced the most favorable age distribution of heart disease mortality, with only 21 percent of deaths occurring among those less than 65 years old.

The age distributions of heart disease deaths among men differ substantially from the patterns observed for women and reported in our previous publication, *Women and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality*.[17] A markedly larger proportion of heart disease deaths among men, compared with women, occurred before 65 years of age. The proportion of heart disease deaths that were premature for men compared with women was 40 percent vs. 22 percent for blacks, 37 percent vs. 16 percent for Hispanics, 31 percent vs. 24 percent for American Indians and Alaska Natives, 26 percent vs. 16 percent for Asians and Pacific Islanders, and 21 percent vs. 8 percent for whites.

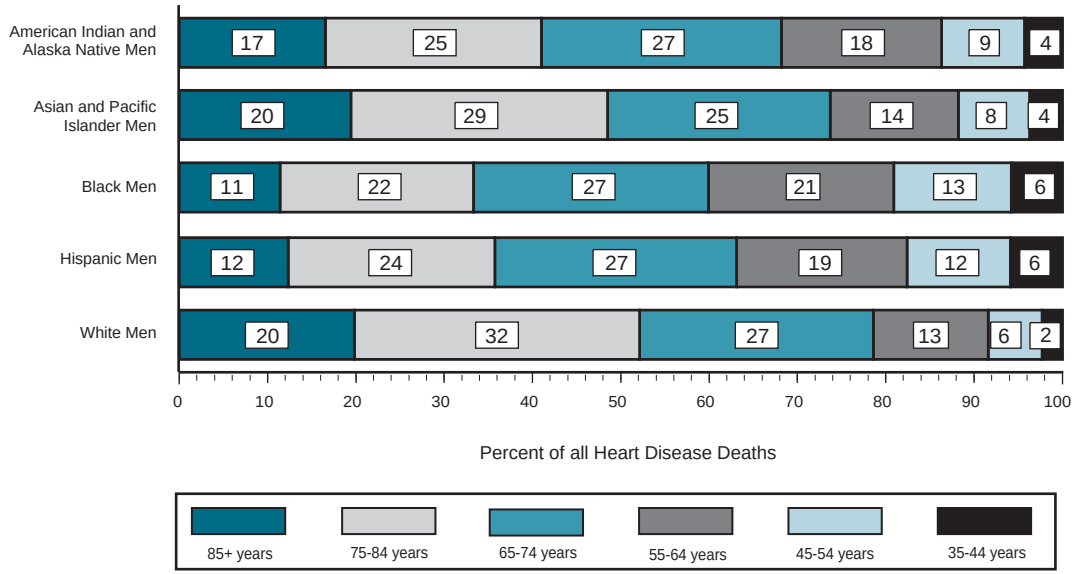
Heart Disease Death Rate Trends for 1991-1995

Disparities in the level of heart disease mortality among the five race and ethnicity groups of men were observed for the years 1991-1995 (Figure 1.3). The highest rates occurred among African American men, followed by white men, American Indian and Alaska Native men, Latinos, and Asian and Pacific Islander men. Throughout the time period, there was a more than twofold difference between the lowest rates (Asian and Pacific Islander men) and the highest rates (black men). Based on previous research, it is likely that the low heart disease death rates observed nationwide for Asian and Pacific Islander men were predominantly a reflection of the mortality experience of Asian men. A study of heart disease mortality in Hawaii found that rates for Hawaiian and other Pacific Islander men were two to six times higher than the death rates for Chinese, Philipino, and Japanese men.[18]

In 1995, the heart disease death rate among African American men was 29 percent higher than the rate for white men, 90 percent higher than the rate for American Indian and Alaska Native men, 97 percent higher than the rate for Latinos, and 126 percent higher than the rate for Asian and Pacific Islander men. However, as discussed above, misreporting of race and ethnicity on death certificates may have led to the rates reported here for American Indians and Alaska Natives and Asians and Pacific Islanders being spuriously lower than the true rates of heart disease mortality.

Although there were substantial declines in heart disease mortality among men during the 1970s and 1980s, the rate of decline slowed substantially in the 1990s. The trend data presented here indicate that there were only modest declines in heart disease death rates in the 1990s. On average, heart disease death rates dropped 1.9 percent per year for men of all racial and ethnic groups combined. (The average annual percent change in death rate was calculated by subtracting the 1991 rate from the 1995 rate, dividing by the 1991 rate, and then dividing by 4). Latinos and American Indian and Alaska Native men experienced faster declines (2.3 percent and 2.6 percent per year, respectively) than black men (1.7 percent per year) and white men (1.9 percent per year). Asian and Pacific Islander men experienced the least decline in heart disease mortality from 1991 to 1995 (1.1 percent per year).

Figure 1.2
Age distribution of heart disease deaths among men 35 years of age and older, by race and ethnicity, 1991-1995



County Variation in Heart Disease Death Rates

There was marked geographic variation in the level of heart disease death rates among men of all racial and ethnic groups during 1991-1995, as summarized in Figure 1.4. For each racial and ethnic group, the number of counties for which data were available varied, depending on county population sizes for each group. For example, rates were calculated for 3098 counties for white men, but only for 344 counties for Asian and Pacific Islander men, because the Asian and Pacific Islander population is small relative to the white population and is concentrated in certain parts of the country.

The distribution of heart disease death rates across counties for men of all races and ethnicities combined was virtually identical to the pattern observed for white men. The county at the midpoint of the heart disease death rate distribution (50th percentile) for white men had a rate of 682 deaths per 100,000 population. Asian and Pacific Islanders experienced the lowest county heart disease death rates, with a rate of 293 deaths per 100,000 population at the 50th percentile of the county distribution. Hispanic men also experienced low county rates of heart disease mortality, with a 50th percentile county rate of 407 deaths per 100,000 population. American Indian and Alaska Native men experienced relatively high county death rates for heart disease, with a 50th percentile rate of 730 deaths per 100,000 population. On average, the highest county heart disease death rates were experienced by African Americans, with a 50th percentile rate of 840 deaths per 100,000.

Geographic disparities in heart disease death rates, measured by the standard deviation of the distribution (SD) of county rates, was lowest among Asian and Pacific Islander men (SD=70 deaths per 100,000 population) and white men (SD=95 deaths per 100,000 population). Intermediate geographic variation in heart disease death rates was observed for Latinos (SD=122 deaths per 100,000 population) and black men (SD=141 deaths per 100,000 population). American Indian and Alaska Native men experienced the greatest disparities in heart disease death rates among counties (SD=497 deaths per 100,000 population), reflecting the diversity of the numerous Tribal nations which were combined for purposes of data analysis in this report.

Figure 1.3
Trends in heart disease mortality among men 35 years of age and older, by race and ethnicity, 1991-1995

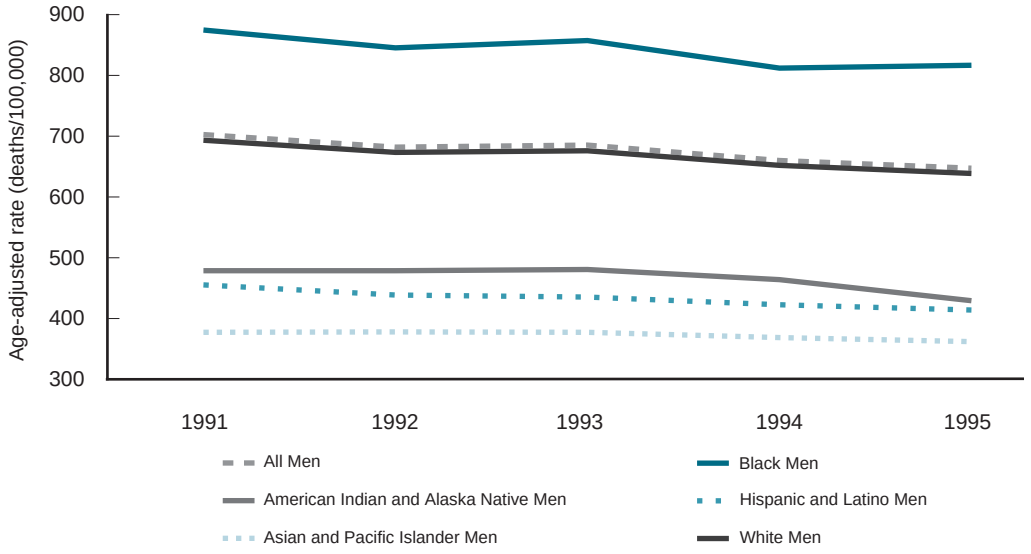


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Figure 1.4
Frequency distribution of smoothed county heart disease death rates for men 35 years of age and older, by race and ethnicity, 1991-1995